

Appl. No.: 10/025,280
Response dated October 14, 2003
Office Action 7/16/2003

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

1. (currently amended) A dry cleaning composition comprising densified carbon dioxide and polar solvent in a weight ratio of from ~~5:1 to 100,000~~ 5:1 to 100,00:1, a surfactant and a hydrophilic fluorescer ~~wherein the densified carbon dioxide is at a temperature from about -78.5°C to about 30°C.~~

2. (original) A dry cleaning composition according to claim 1, wherein the surfactant is selected from compounds of general formula



wherein R_n - is a densified CO₂-philic functional group, R is a halocarbon, a polysiloxane, or a branched polyalkylene oxide and n is 1-50, and Z_m - is a densified CO₂-phobic functional group, and

m is 1-50 and at pressures of 101 kPa to 68.9 MPa and temperatures of from -78.5 to 100°C, the R_n - group is soluble in the densified carbon dioxide to greater than 10 wt. percent and the Z_m - group is soluble in the densified carbon dioxide to less than 10 wt. percent.

3. (original) A composition according to claim 1, wherein the surfactant is present in an amount sufficient to cause the polar solvent to be present as a microemulsion within the densified carbon dioxide.

4. (original) A composition according to claim 3, wherein the polar solvent of the microemulsion has a core droplet size from 2 nm to 10 nm.

5. (original) A dry cleaning composition according to claim 1, wherein the amount of surfactant is from 0.001% to 20%.

6. (original) A composition according to claim 1, wherein the amount of polar solvent is from 0.001% to 20% by weight of the total composition, including the densified carbon dioxide.

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7. (original) A composition according to claim 1, wherein the hydrophilic fluorescer has a log P of less than 2 or a at least one Brönsted acidic or basic functional group with a pKa of 7 or less.
8. (original) A composition to claim 1 wherein the hydrophilic fluorescer is selected from organic fluorescers having one or more hydrophilic groups selected from sulphate, carboxylate, sulphate, phosphate, phosphonate, phosphinate, hydroxyl, (primary, secondary and tertiary)amino and (poly)alkoxylated groups and mixtures thereof.
9. (original) A composition according to claim 1 wherein the fluorescer is selected from water-soluble and water-dispersible distyrylbiphenyl derivatives, distilbene derivatives, coumarin derivatives, cyanuric chloride/diaminostilbene derivatives and dibenzofuranbiphenyl derivatives and mixtures thereof.
10. (currently amended) A ~~dry-cleaning~~ composition according to claim 1 wherein the composition comprises from 0.1 to 1000ppm of fluorescer by weight of the composition.
11. (original) A composition according to to claim 1, wherein the composition further comprises from 0 % to 90 % of hydrotrope by weight of the final composition.
12. (original) A composition according to claim 11, wherein the hydrotrope is selected from alkanols, mono- di-, or triethanolamine, polyols and mixtures thereof.

Claims 13-15 (cancelled).

16. (NEW) A dry cleaning composition comprising:
a densified carbon dioxide; and
a premix at a pH of about 4.0 or less, comprising: a hydrophilic fluorescer, a polar solvent and a surfactant,
wherein the carbon dioxide and the polar solvent are in a weight ratio of from 5:1 to 100,000:1.
17. (NEW) The composition of claim 16, wherein the densified carbon dioxide is at a temperature from about -78.5°C to about 30°C.
18. (NEW) The composition of claim 1, wherein the hydrophilic fluorescer has a log P of less than 2 or a at least one Brönsted acidic or basic functional group with a pKa of 7 or less.

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19. (NEW) The composition of claim 1, wherein the hydrophilic fluorescer is selected from organic fluorescers having one or more hydrophilic groups selected from sulphonate, carboxylate, sulphate, phosphate, phosphonate, phosphinate, hydroxyl, (primary, secondary and tertiary)amino and (poly)alkoxylated groups and mixtures thereof.

20. (NEW) The composition of claim 1, wherein the fluorescer is selected from water-soluble and water-dispersible distyrylbiphenyl derivatives, distilbene derivatives, coumarin derivatives, cyanuric chloride/diaminostilbene derivatives and dibenzofuranbiphenyl derivatives and mixtures thereof.

21. (NEW) The composition of claim 1, wherein the composition comprises from 0.1 to 1000 ppm of fluorescer by weight of the composition.

22. (NEW) A dry cleaning composition comprising densified carbon dioxide and polar solvent in a weight ratio of from 5:1 to 100,00:1, a hydrophilic fluorescer and a surfactant selected from compounds of general formula:



wherein R_n - is a densified CO_2 -philic functional group, R is a halocarbon, a polysiloxane, or a branched polyalkylene oxide and n is 1-50, and Z_m - is a densified CO_2 -phobic functional group, and

m is 1-50 and at pressures of 101 kPa to 68.9 MPa and temperatures of from -78.5 to $100^\circ C$, the R_n - group is soluble in the densified carbon dioxide to greater than 10 wt. percent and the Z_m - group is soluble in the densified carbon dioxide to less than 10 wt. percent.